Patent Office
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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002951170 for a patent by BRITAX CHILD-CARE PRODUCTS PTY LTD as filed on 03 September 2002.

I further certify that the name of the applicant has been amended to BRITAX CHILDCARE PTY LTD pursuant to the provisions of Section 104 of the Patents Act 1990.

WITNESS my hand this
Sixth day of August 2003

J. Billingsley

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES

BRITAX CHILD-CARE PRODUCTS PTY LTD

AUSTRALIA
PATENTS ACT 1990

PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:

"IMPROVED SECURITY STRAP SYSTEM"
This invention is described in the following statement:

This invention relates to a mounting system for child car seats and more particularly to a mounting system and method of mounting straps suitable for retaining a child car seat within a vehicle without the necessity for using seatbelts.

Child car seats may be of the type which are adapted for both forward and rearward facing use and in such seats there is a necessity for two restraining strap paths to ensure that the child car seat is correctly retained in the vehicle. One restraining strap path is used when the child car seat is in the rearward facing position and the other is used when the child car seat is in the forward facing position. The rearward facing position is generally used for younger babies with the seat on a more reclined position and the forward facing position is generally used for older babies with the seat on a more upright position.

The restraining strap used may be an existing seatbelt in a vehicle but in some vehicles these may not be present or adequate for the purpose of restraining the child car seat.

In an alternative to using a seatbelt for retaining the child car seat there has been proposed a connecting strap system using latches which engage with latch bars mounted into the seat either side of the child car seat position. Once again such a connecting strap must use different belt paths through the seat for rearward and forward facing use.

Separate connecting straps can be provided for each belt path with associated latches and length adjusting mechanisms on each strap but it is desirable that a single connecting strap be used for both forward and rearward facing strap paths. It is important and in some cases mandatory, however, that the connecting strap or straps cannot be removed entirely from the seat because this may encourage people to use the seat without any connecting strap.

It is the object of this invention therefore to provide a system and a method of mounting a strap by which a connecting strap can be used for either rearward or forward facing seats but not be removable from the seat.

In one form therefore, although this may not necessarily be the only or broadest form of the invention, it is said to reside in a connecting system for a child car seat in a vehicle, the child car seat being of a type which can either be rearward or forward facing and having separate strap paths for each of the rearward and facing positions of the child car seat, a rear path for use when the seat is in the forward facing position and a front path for use when the seat is in the rearward facing position, the connecting system including a connecting strap having latches at either end thereof which are adapted to engage with latching bars on the vehicle, the connecting strap passing through and being fixed into a strap path, the connecting strap being sufficiently long that respective ends extending from each side of the strap path can be passed through the front path from opposite sides to cross and to extend out the opposite side of the front path for use when the child car seat is in the rearward facing position or be passed through the rear path from opposite sides to cross and to extend out the opposite side of the rear path for use when the child car seat is in the forward facing position.

In one embodiment the strap path may be the rear path. Hence when the restraining strap is used for the forward facing position the strap extends directly to the latch bars and when the seat is used in the rearward facing position the strap is crossed through the front path and then extends to the latch bars.

Alternatively the strap path may be the front path. Hence when the restraining strap is used for the rearward facing position the strap extends directly to the latch bars and when the seat is used in the forward facing position the strap is crossed through the rear path and then extends to the latch bars.

In an alternative arrangement the strap path may be a separate path across the seat between the front path and the rear path. Hence when the restraining strap is used

for the forward facing position the strap crossed through the rear path and then extend to the latch bars and when the seat is used in the rearward facing position the strap is crossed through the front path and then extends to the latch bars.

In an alternative form the invention is said to reside in a method of restraining a child car seat in a vehicle, the child car seat being of a type which can either be rearward or forward facing and having separate strap paths for each of the rearward and facing positions of the child car seat, a rear path for use when the seat is in the forward facing position and a front path for use when the seat is in the rearward facing position, a connecting strap passing through and being fixed in a strap path and having portions extending from each side of the strap path and latches at either end thereof which are adapted to engage with latching bars on the vehicle, the method including the steps of passing respective extending portions of the connecting strap through either the rear or the front path from opposite sides and crossing each other and extending out the opposite side of the rear or front path for use when the child car seat is in the forward or rearward facing position respectively.

In one embodiment the strap path may be the rear path. Hence when the restraining strap is used for the forward facing position the strap extends directly to the latch bars and when the seat is used in the rearward facing position the strap is crossed through the front path and then extends to the latch bars.

Alternatively the strap path may be the front path. Hence when the restraining strap is used for the rearward facing position the strap extends directly to the latch bars and when the seat is used in the forward facing position the strap is crossed through the rear path and then extends to the latch bars.

In an alternative arrangement the strap path may be a separate path across the seat between the front path and the rear path. Hence when the restraining strap is used for the forward facing position the strap crossed through the rear path and then extend to the latch bars and when the seat is used in the rearward facing position the strap is crossed through the front path and then extends to the latch bars.

It will be seen that by this invention there is proposed a system and a method of mounting a strap where the fixing of the connecting strap in a strap path prevents a user from removing the connecting strap but still enables the strap to be used in either position of the seat to encourage the connecting strap to be used where possible.

In an alternative arrangement the connecting strap may be fixed in the front path and adapted to be crossed over in the rear path. This may be more convenient because the child car seat would normally be used first in the rearward facing position with the strap in the front path with a baby and then as the baby gets older the forward facing position can be used and then the ends of the connecting strap can be crossed through the rear path and connected to respective latches.

Preferably the connecting strap is of a type which includes latches which are known as Isofix latches which are suitable for retaining child car seats into a motor vehicle. A particular feature of these latches is that the latch can only be engaged with the latch bar in one orientation. Using the system of the present invention the latch is presented to the latch bar in the correct orientation when the connecting strap is moved for use in one position to the other position.

The connecting strap may be fixed into the rear path by rivets or brackets or other known methods. The fixing may be adapted to allow longitudinal movement of the connecting strap so that the necessary length of strap can be provided on each side of the seat. The fixing which allows some longitudinal movement should, however, not allow complete removal of the strap.

Preferably the latches are of a type which include automatic spring engagement when connected to the latching bar and a release button to release the strap when it is desired to remove them.

The connecting strap may include a length adjuster at one or both ends.

In an alternative form of the invention is said to reside in a connecting system for a child car seat in a vehicle, the child car seat being of a type which can either be rearward or forward facing and having separate strap paths for each of the rearward and facing positions of the child car seat, a rear path for use when the seat is in the forward facing position and a front path for use when the seat is in the rearward facing position, the connecting system including a connecting strap having latches at either end thereof which are adapted to engage with latching bars on the vehicle, the connecting strap passing through and being fixed in the rear path, the connecting strap being sufficiently long that respective ends extending from each side of the rear path can be passed through the front path from opposite sides to cross and to extend out the opposite side of the front path for use when the child car seat is in the rearward facing position.

In an alternative form the invention is said to reside in a method of restraining a child car seat in a vehicle, the child car seat being of a type which can either be rearward or forward facing and having separate strap paths for each of the rearward and facing positions of the child car seat, a rear path for use when the seat is in the forward facing position and a front path for use when the seat is in the rearward facing position, a connecting strap passing through and being fixed in the rear path and having portions extending from each side of the rear path and latches at either end thereof which are adapted to engage with latching bars on the vehicle, the method including the steps of passing respective extending portions of the connecting strap through the front path from opposite sides and crossing each other and extending out the opposite side of the front path for use when the child car seat is in the rearward facing position.

This then generally describes the invention but to assist with understanding reference will now be made in the accompanying drawings which show preferred embodiments of the invention.

In the drawings:

Figure 1 shows a side view of a child car seat in the forward facing position including the connecting strap of the present invention;

Figure 2 shows the child car seat of Figure 1 in the rearward facing position with the connecting strap routed to be used in that position;

Figure 3 shows a front view of the child car seat in the position shown in Figure 1;

Figure 4 shows a front view of the child car seat in the position shown in Figure 2; and

Figure 5 shows a side view of an alternative embodiment of a child car seat in the forward facing position including the connecting strap system of the present invention.

Now looking more closely at the drawings the embodiment of the invention shown in shown in Figures 1 to 4 it will be seen that the vehicle has a rear seat with a back 1 and a seat portion 2 upon which a child car seat generally shown as 3 is fitted.

In Figures 1 and 3 the child car seat is shown as used in the forward facing position. The child car seat has a base 3 which sits on the seat portion 2 of the vehicle seat and the child car seat has a back portion 4 which leans against the seat back portion 1. A connecting strap 6 passes through a rear belt path 7 in the portion 4 of the child car seat 3 and has a latch 9 at end 10 which fastens into a latch bar on the seat (not shown). A similar latch 14 is provided a the other end 16 of the connecting strap 6 (see Figures 2, 3 and 4). The connecting strap 6 includes a length adjuster 11 at the end 10 and a length adjuster 19 at the end 16. To ensure that the connecting strap 6 cannot be removed from the child car seat, a bracket 13 and rivet 15 inside the rear belt path 7 is used. It will be noted that there are long tails 18 and 20 of the strap 6 extending from the length adjusters 11 and 19. These allows the length of the connecting strap 6 to be increased when the seat is used in the rearward facing position as discussed below and as shown in Figures 2 and 4. When in the forward facing position the excess strap can be stored in the rear strap path 7.

When it is desired to use the seat in the rearward facing position as shown in Figures 2 and 4 the length of the strap is increased on both sides by use of the length adjusters 11 and 19. The end 10 of the strap 6 is placed into the front path at one side 25 and the end 16 of the strap 6 is placed into the front path at the other side 26. The belt ends 10 and 16 cross within the front path and the end 10 passes out of the front path at side 26 and the end 16 passes out of the front path at side 25. The catches 9 and 14 are then in the correct orientation to engage with respective latch bars (not shown).

In Figure 5 a separate strap path 30 is provided extending across the child car seat 31 beneath the seat portion 32 and between the front path 33 and rear path 34. The strap 36 is retained or fastened in the strap path 30 by a rivet or other arrangement (not shown). The strap 36 extends out either side of the strap path 30 and has a latch 37 at each end. Strap ends can be passed from each side of the seat through either the front path 33 or rear path 34 to cross over and to extend out the opposite side depending upon whether the seat is to be used in a rearward or forward facing position respectively. Latches 37 engage with latch bars (not shown) on a vehicle seat.

It will be seen that by this invention there is provided a retention arrangement by which a connecting strap for child car seat can be retained in association with the seat and not completely removed while still allowing placement for rearward and forward facing positions of the child car seat.

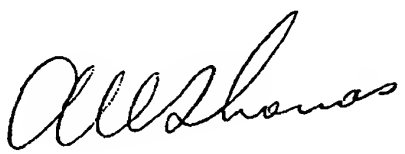
Throughout this specification various indications have been given as to the scope of this invention but the invention is not limited to any one of these but may reside in two or more of these combined together. The examples are given for illustration only and not for limitation.

Throughout this specification unless the context requires otherwise, the words 'comprise' and 'include' and variations such as 'comprising' and 'including' will be understood to imply the inclusion of a stated integer or group of integers but not the

exclusion of any other integer or group of integers.

DATED this 3rd day of September, 2002.

BRITAX CHILD-CARE PRODUCTS PTY LTD
By its Patent Attorneys
MADDERNS



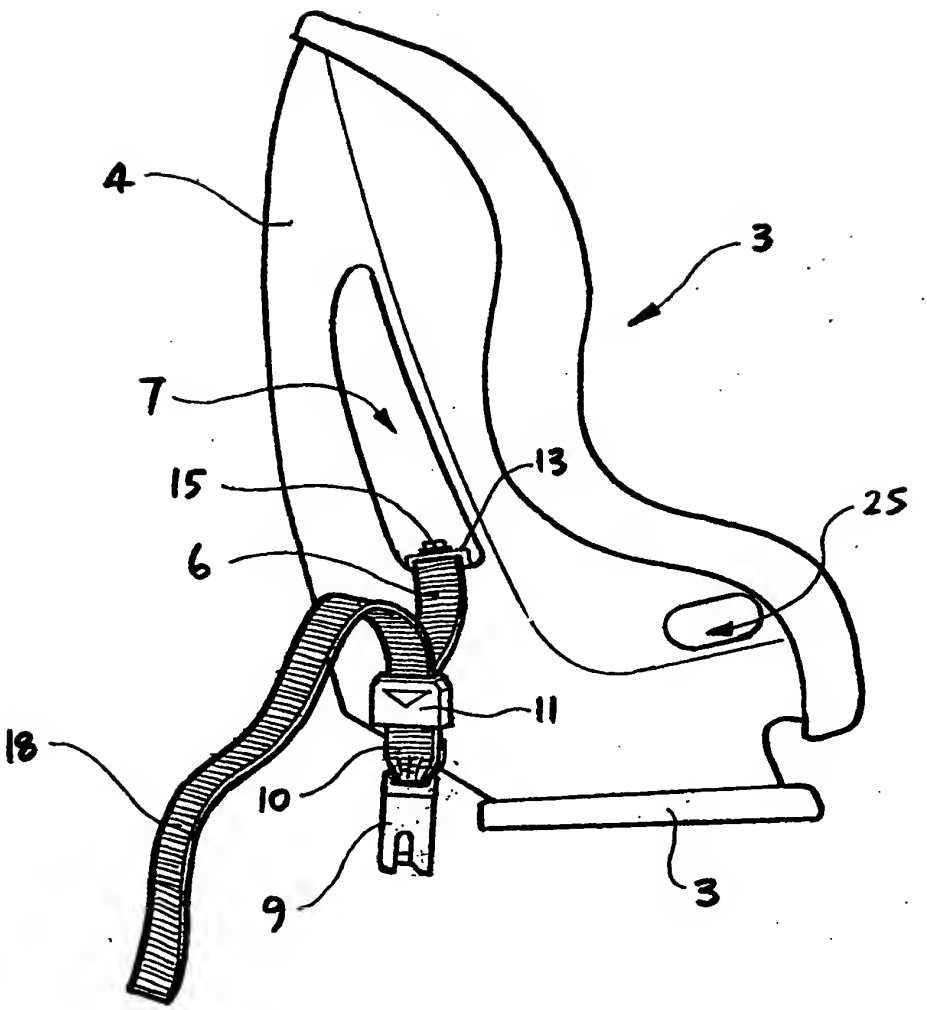


Fig 1

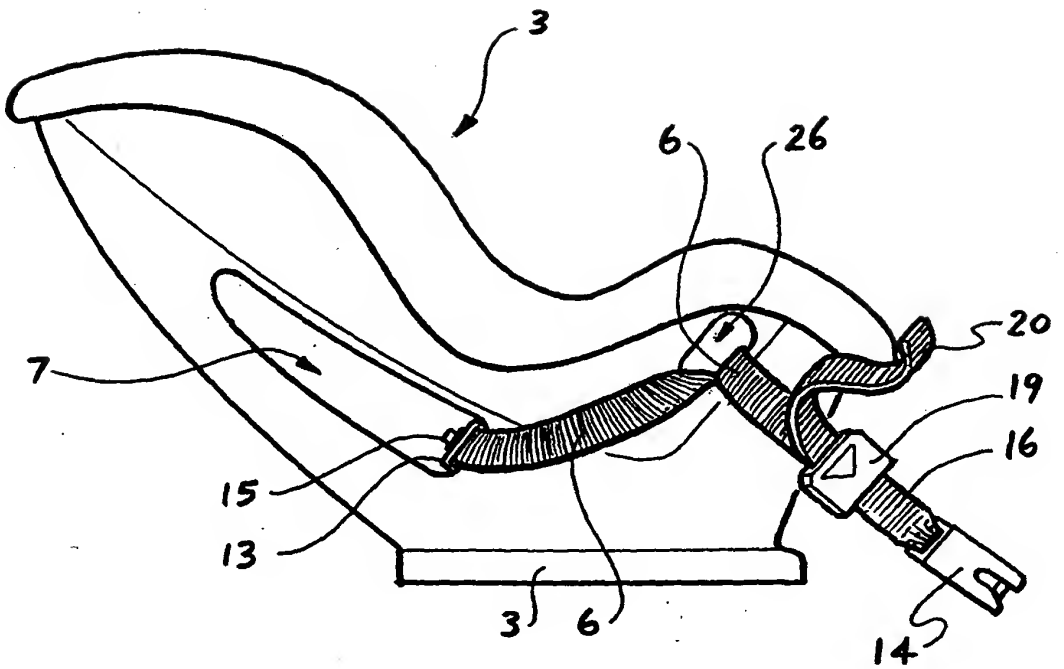


Fig 2

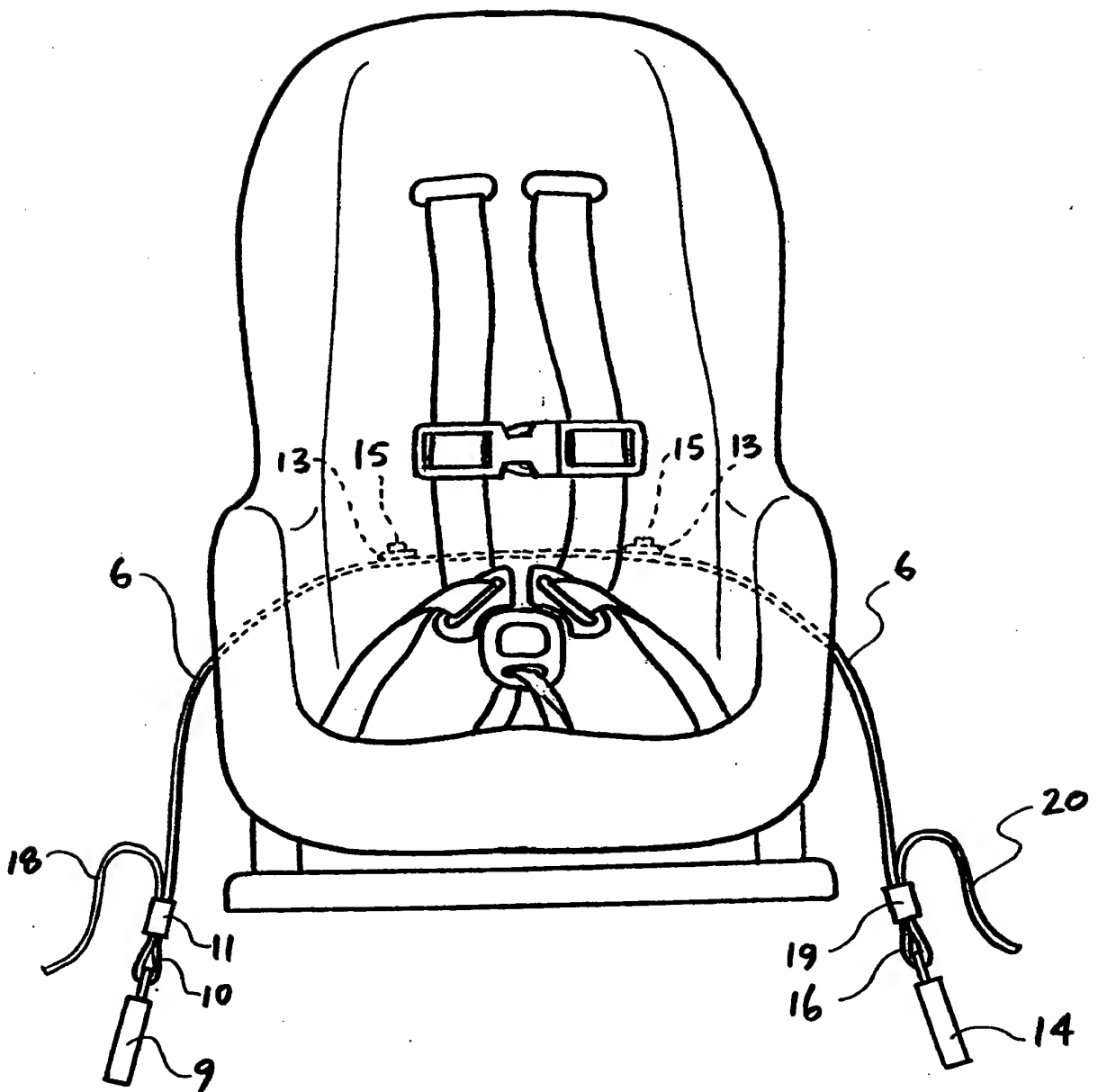


Fig 3.

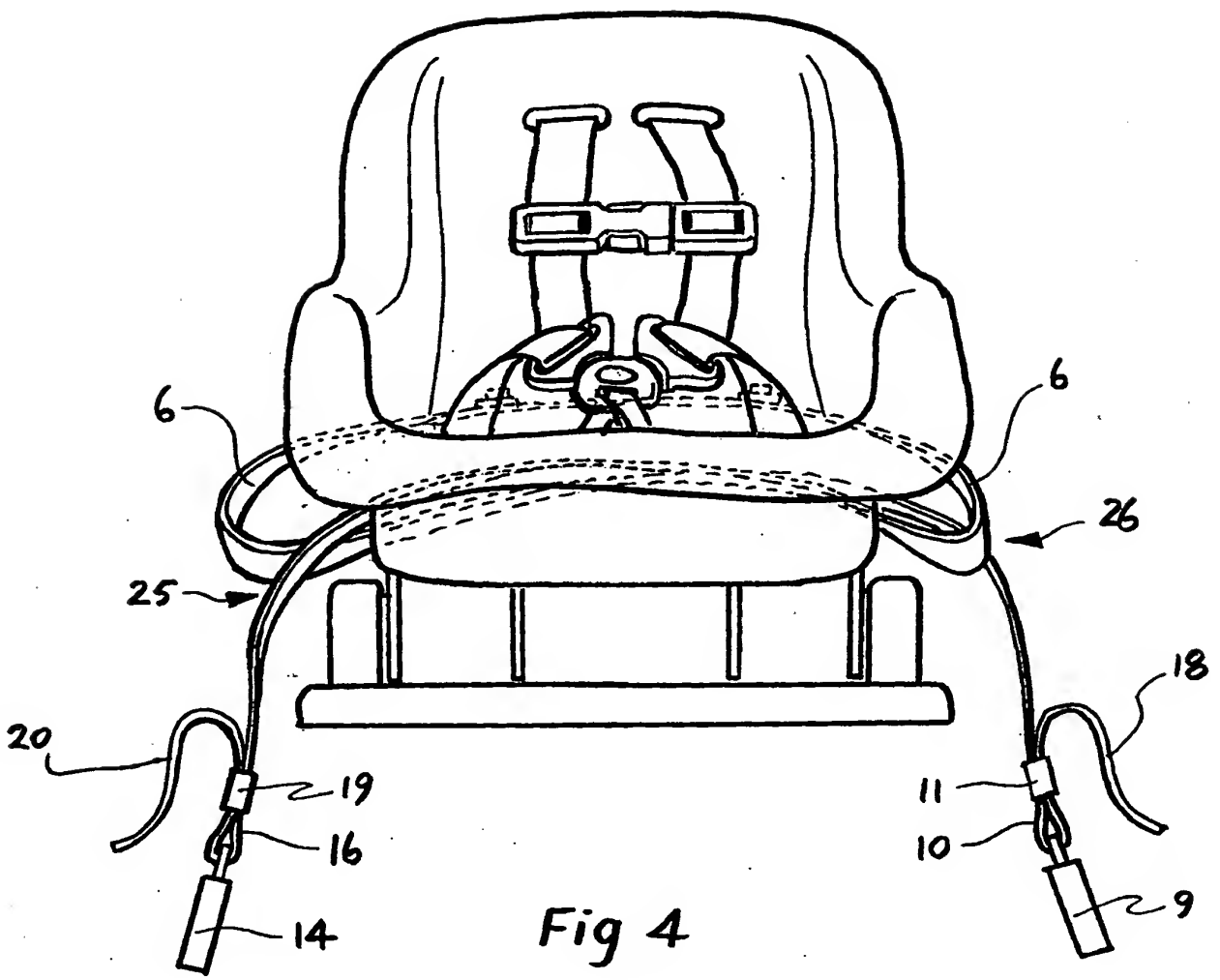


Fig 4

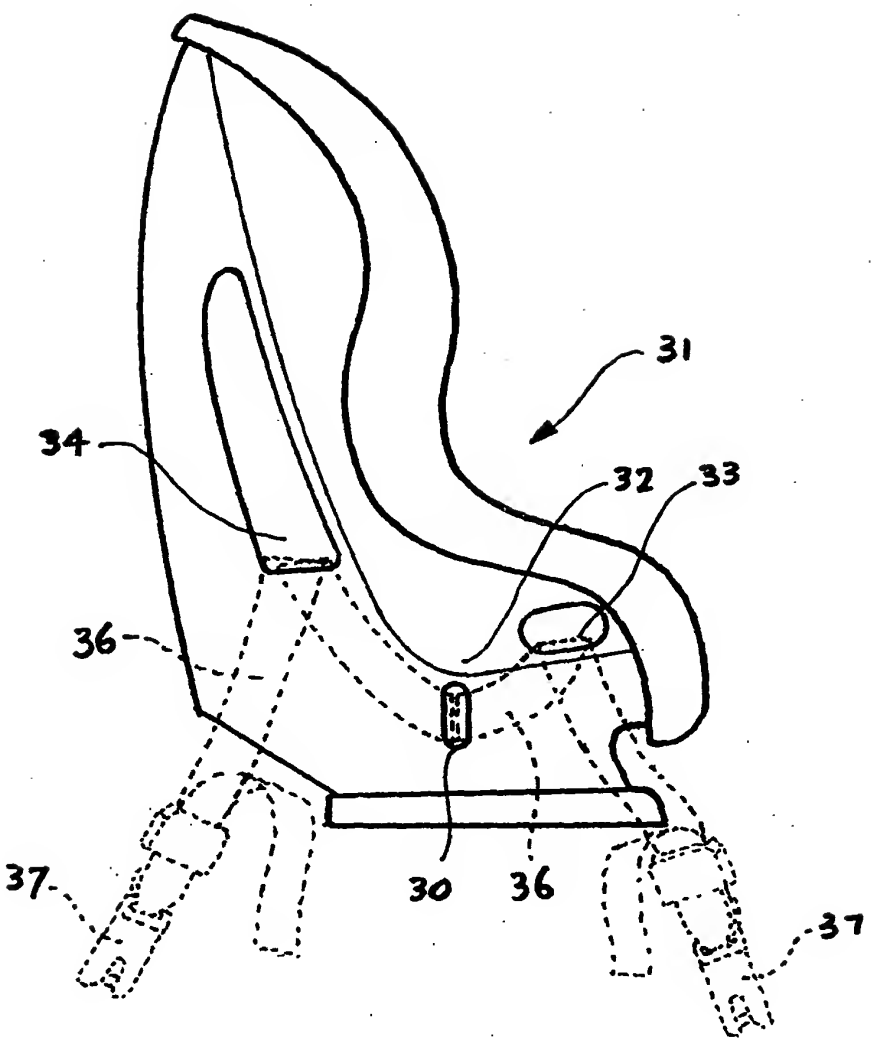


Fig 5